

(10) **Patent No.:** US 9,457,828 B1  
(45) **Date of Patent:** Oct. 4, 2016

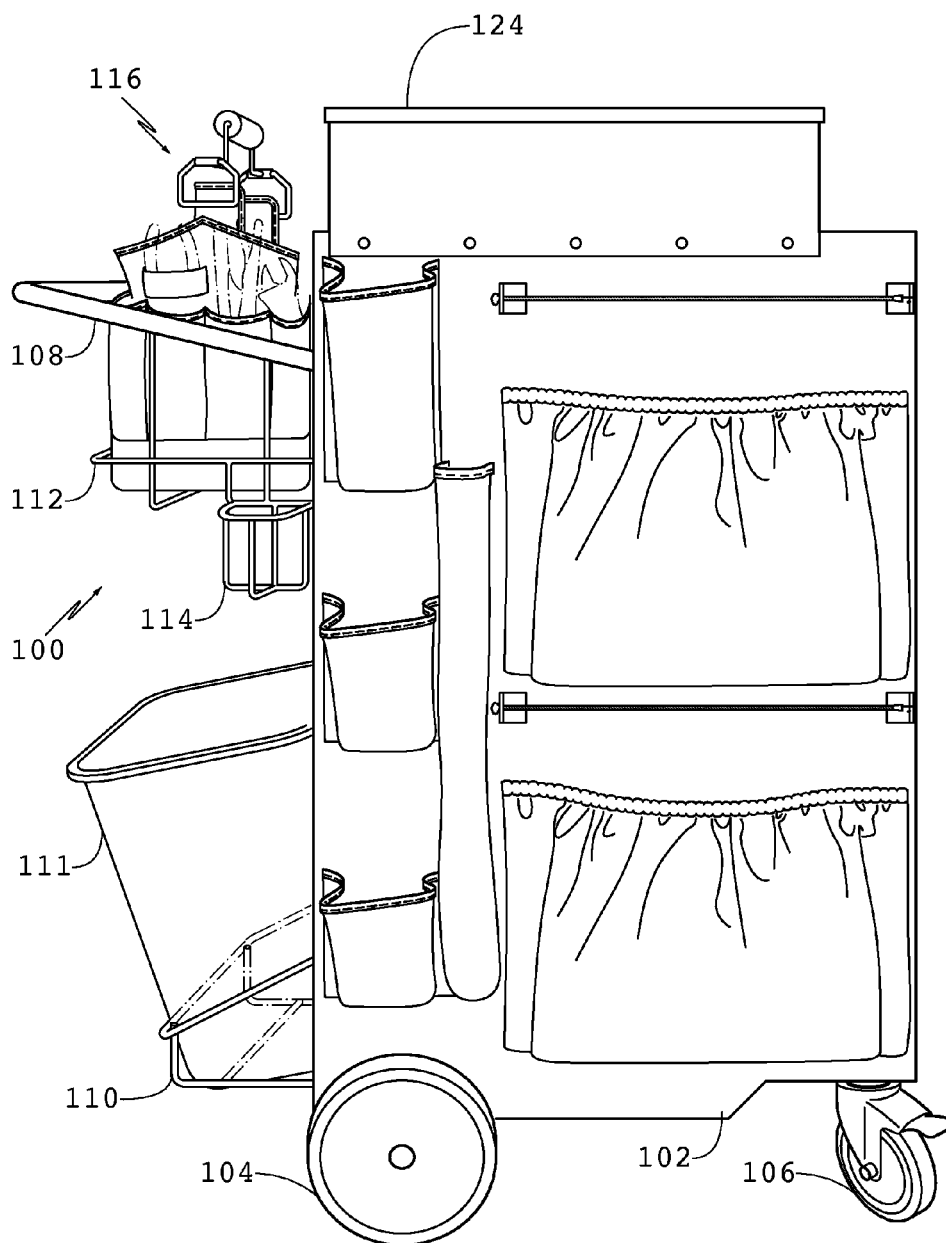


FIG. 1

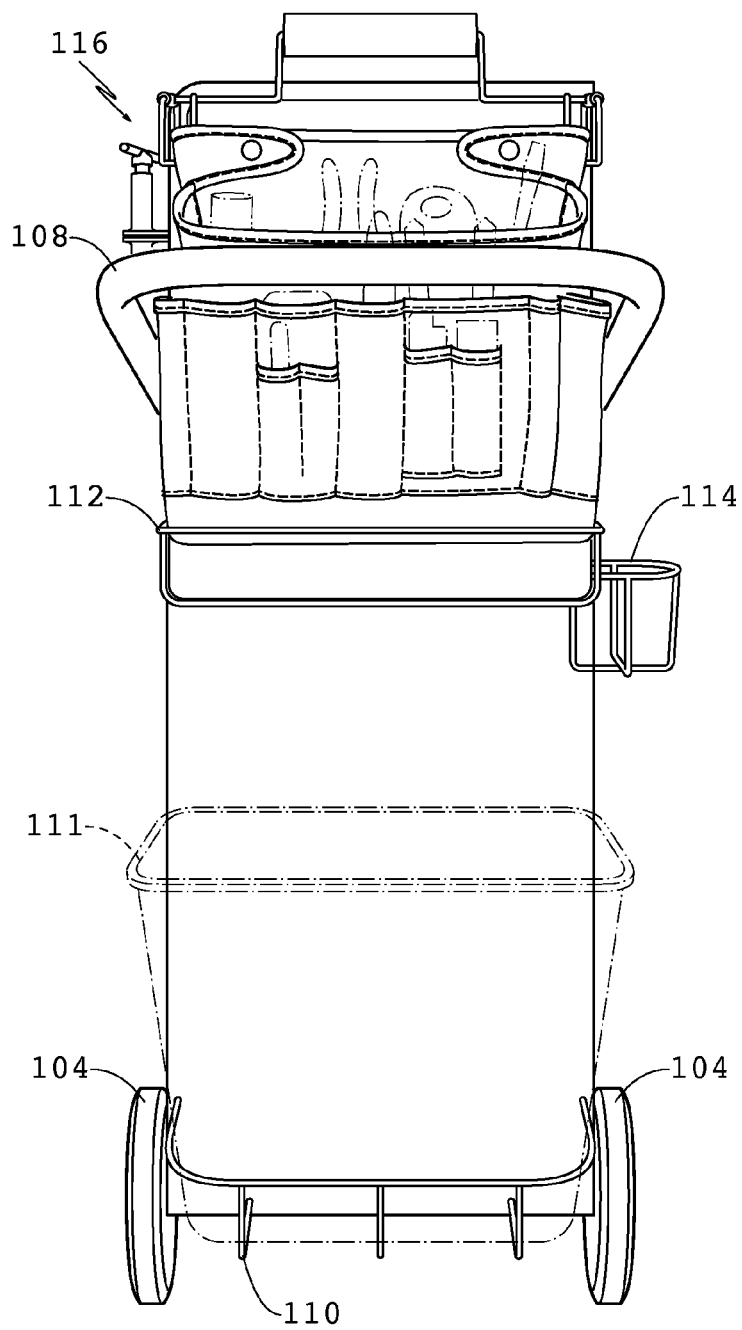


FIG. 2

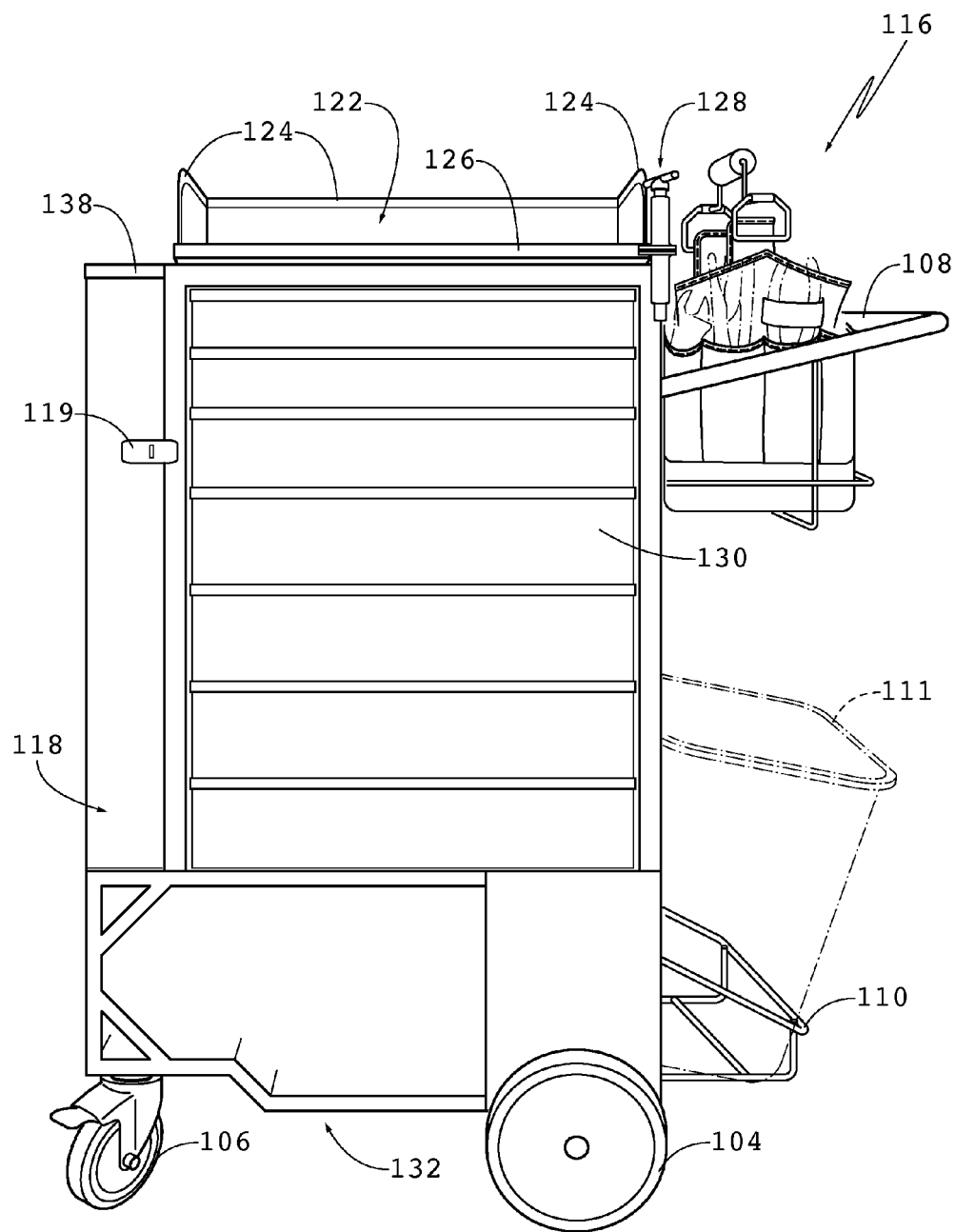


FIG. 3

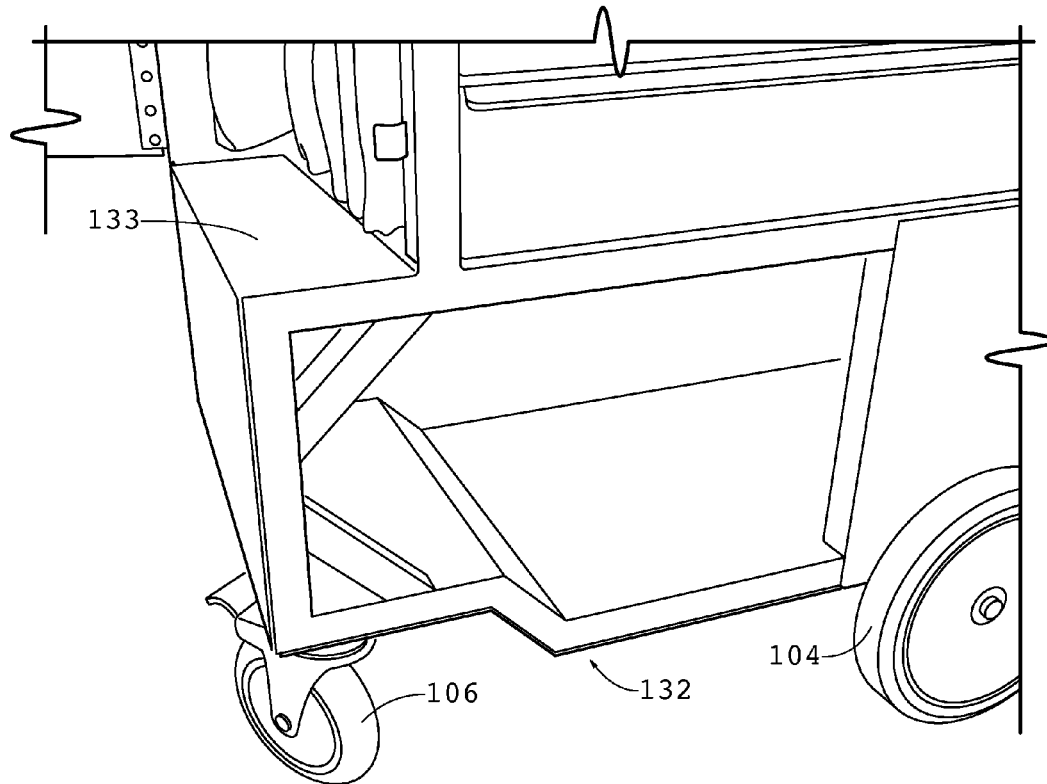


FIG. 4

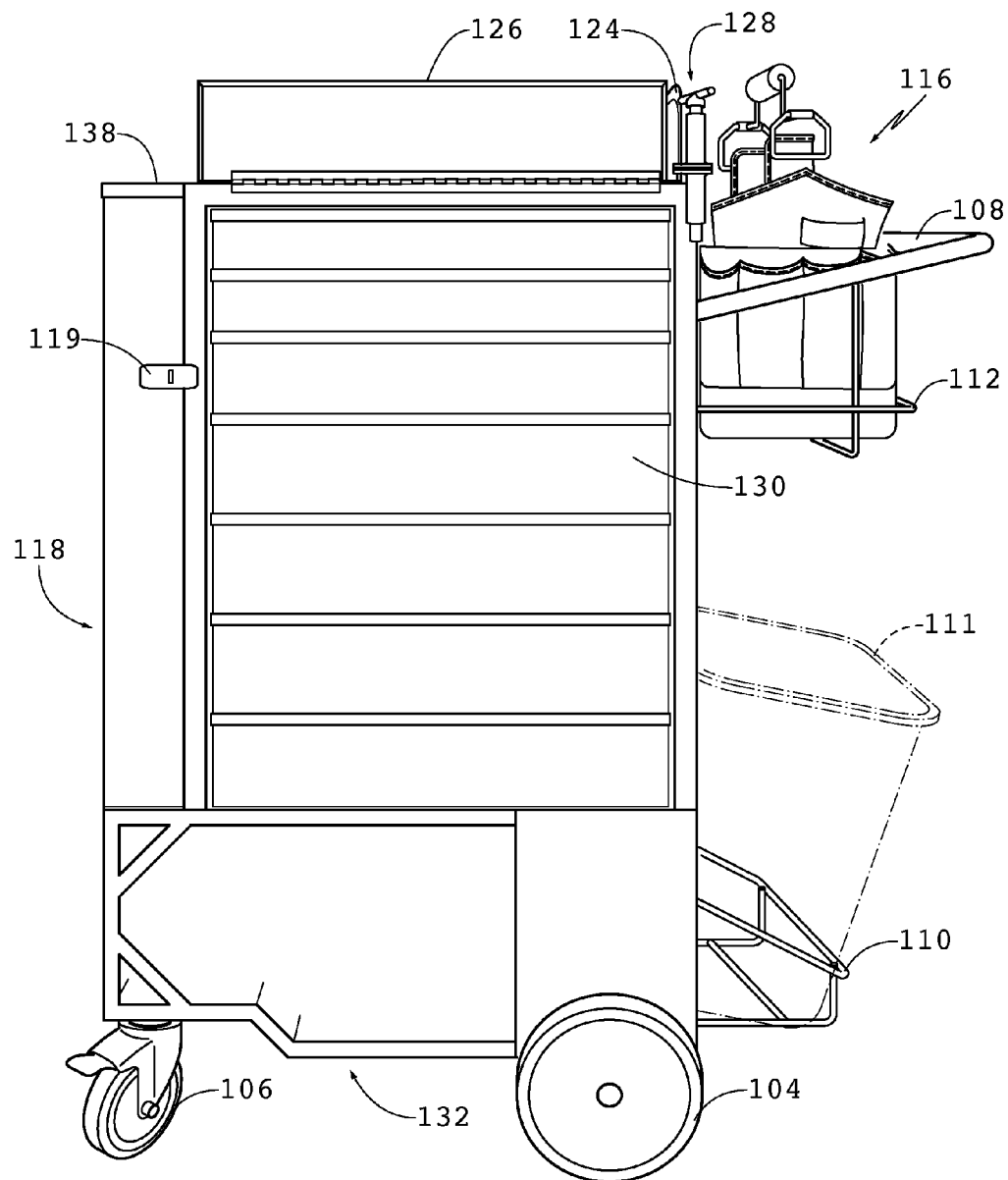


FIG. 5

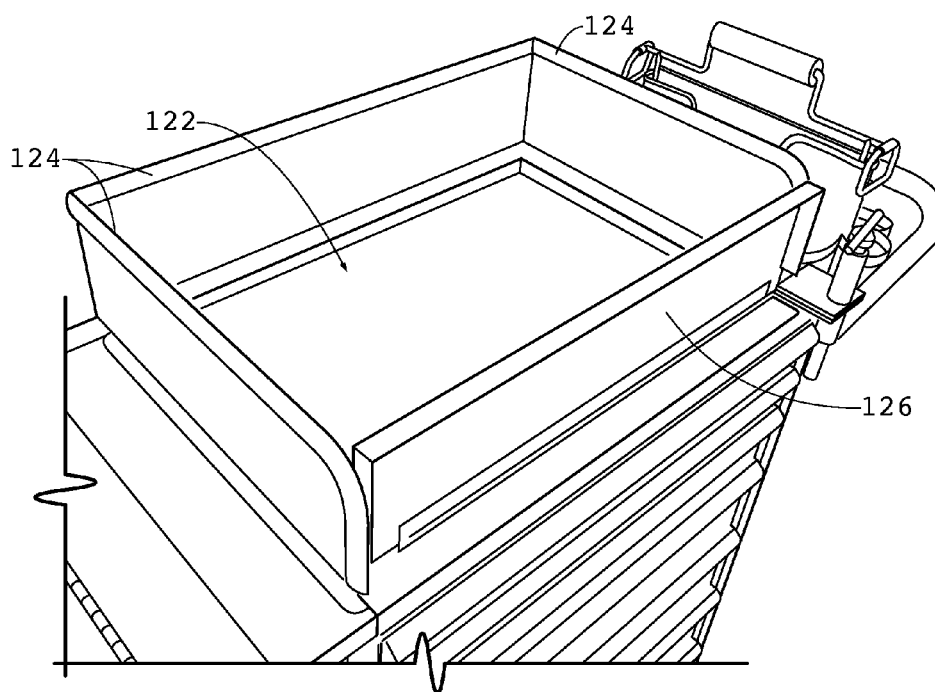


FIG. 6

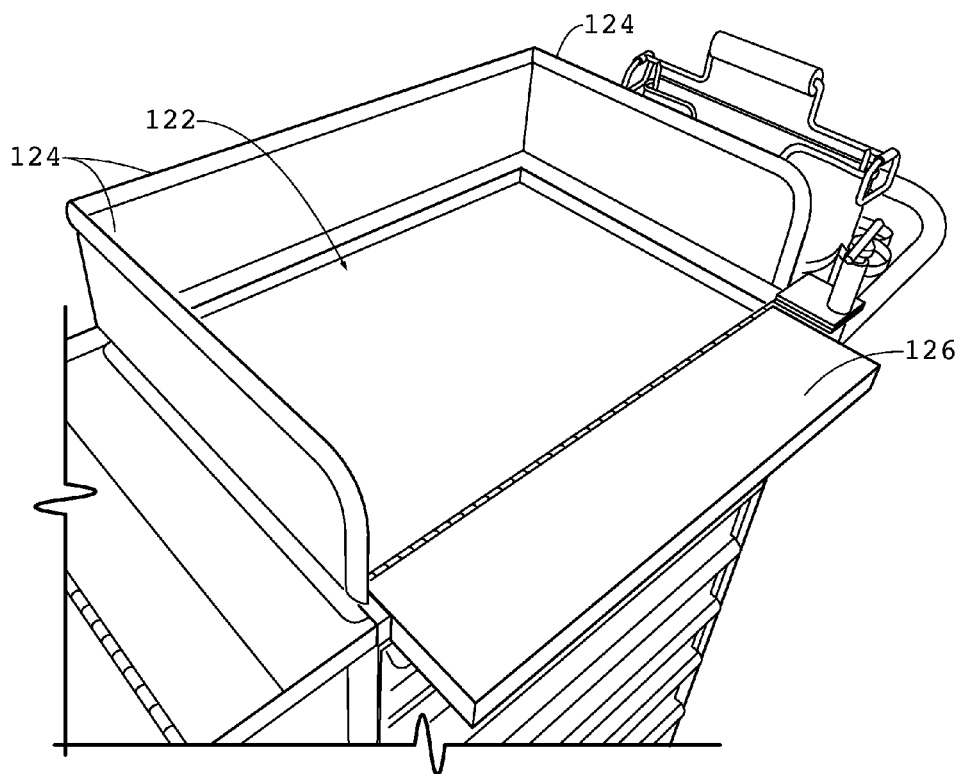


FIG. 7

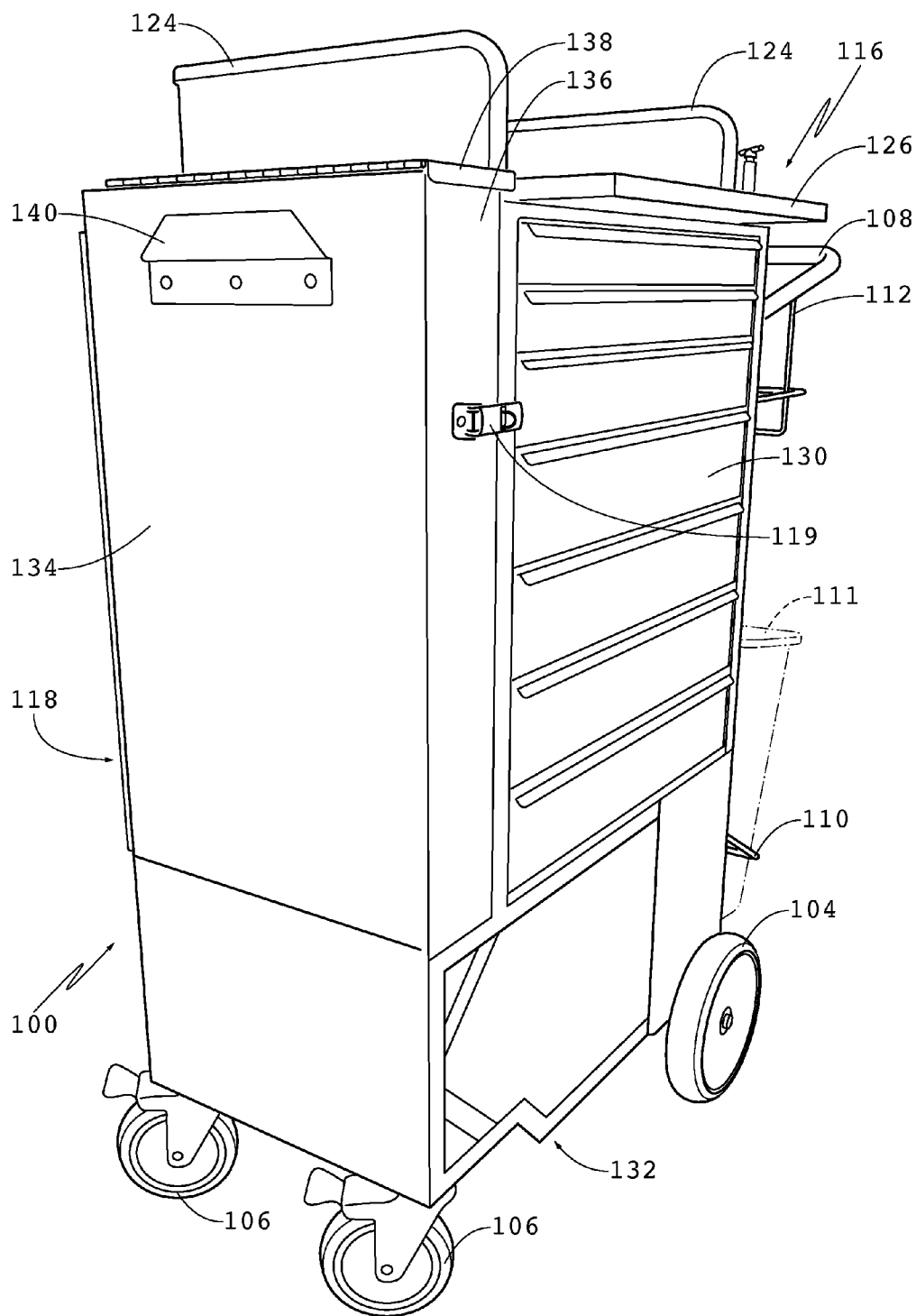


FIG. 8



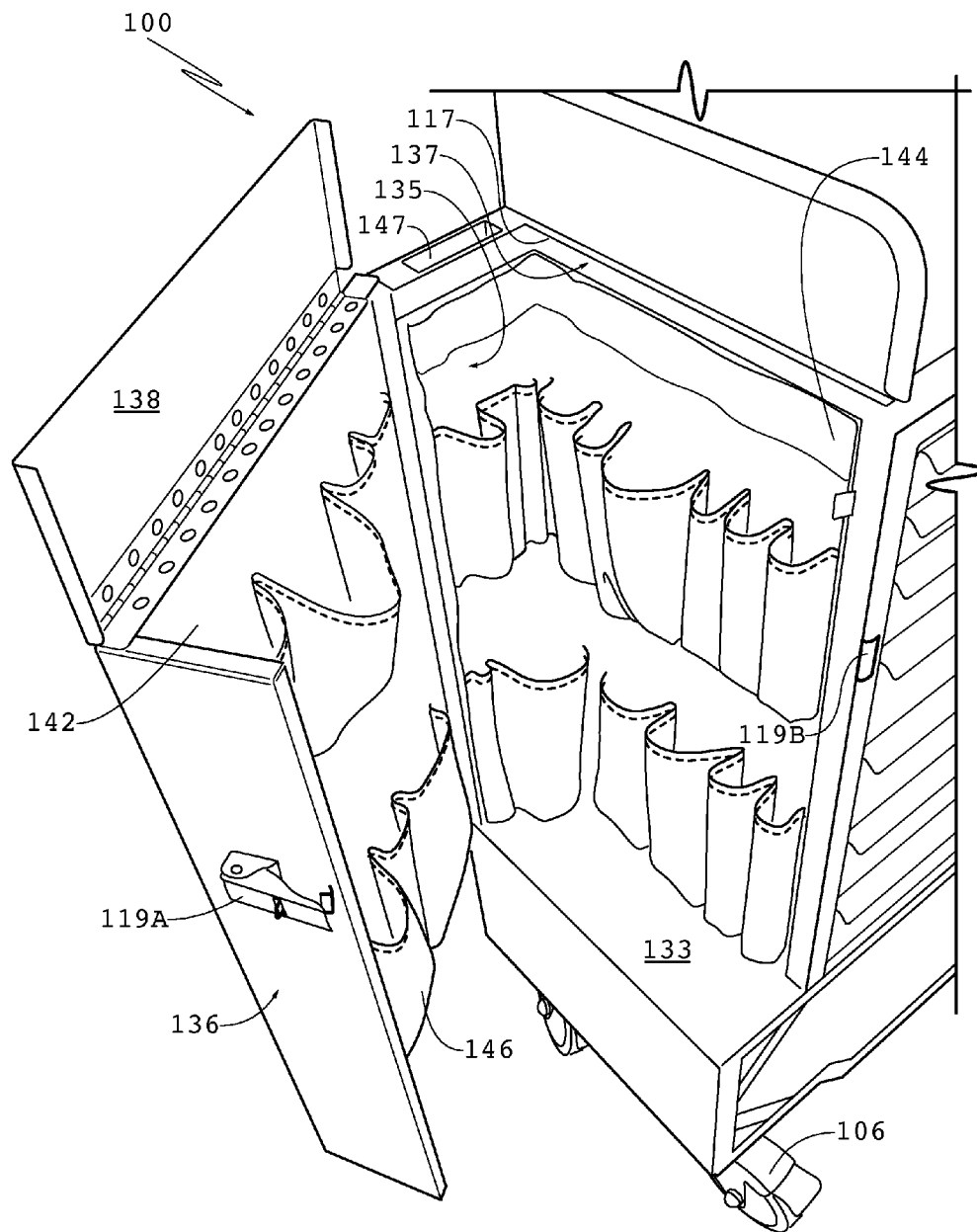


FIG. 9

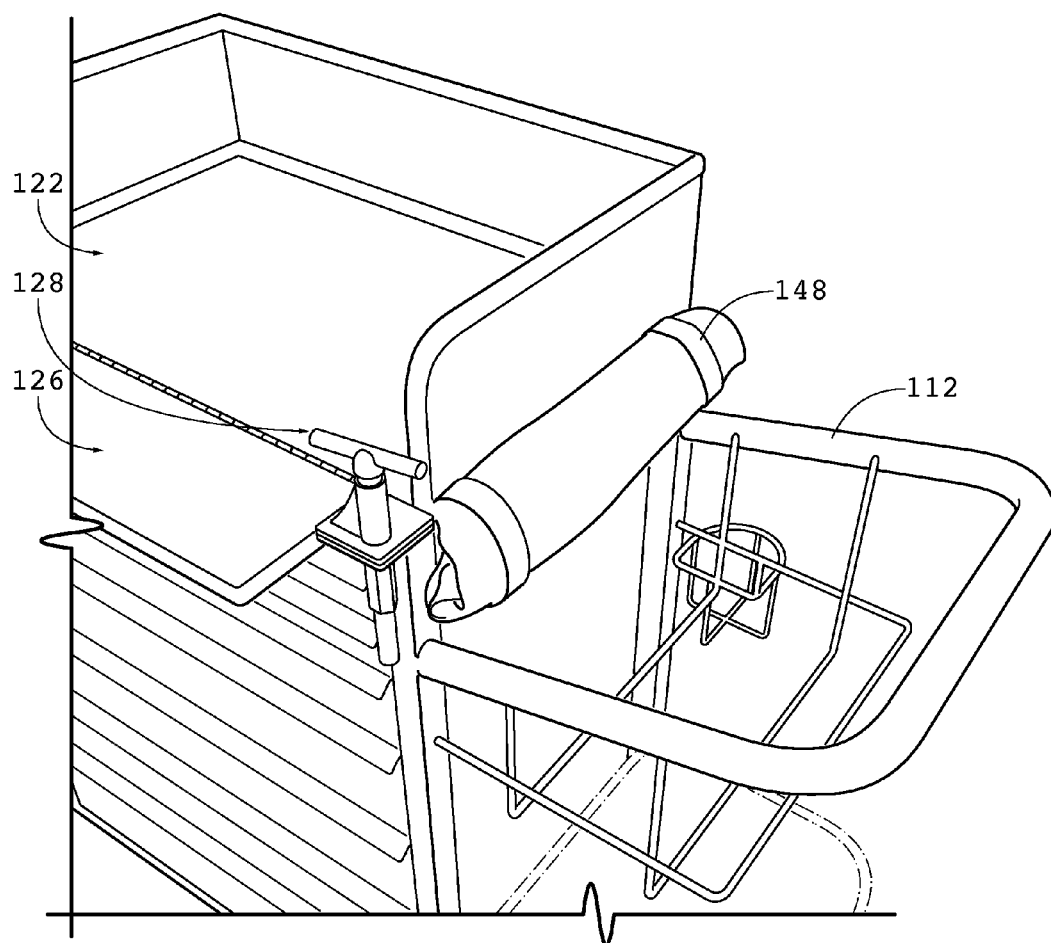


FIG. 10

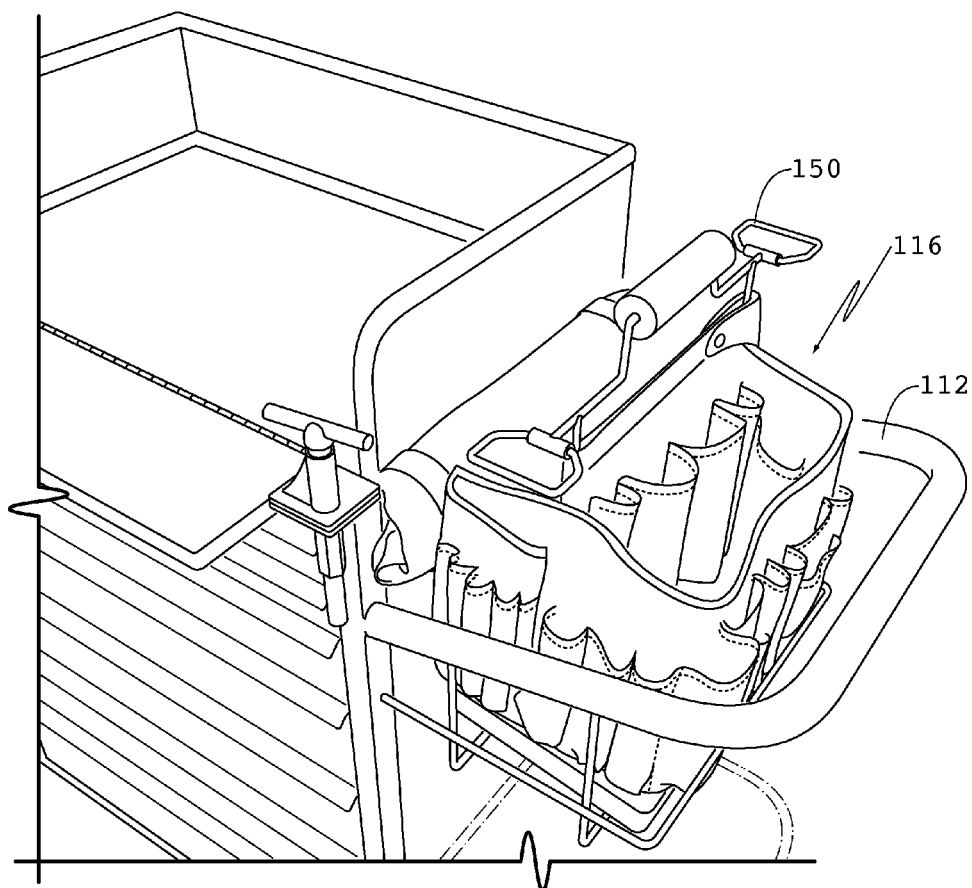


FIG. 11

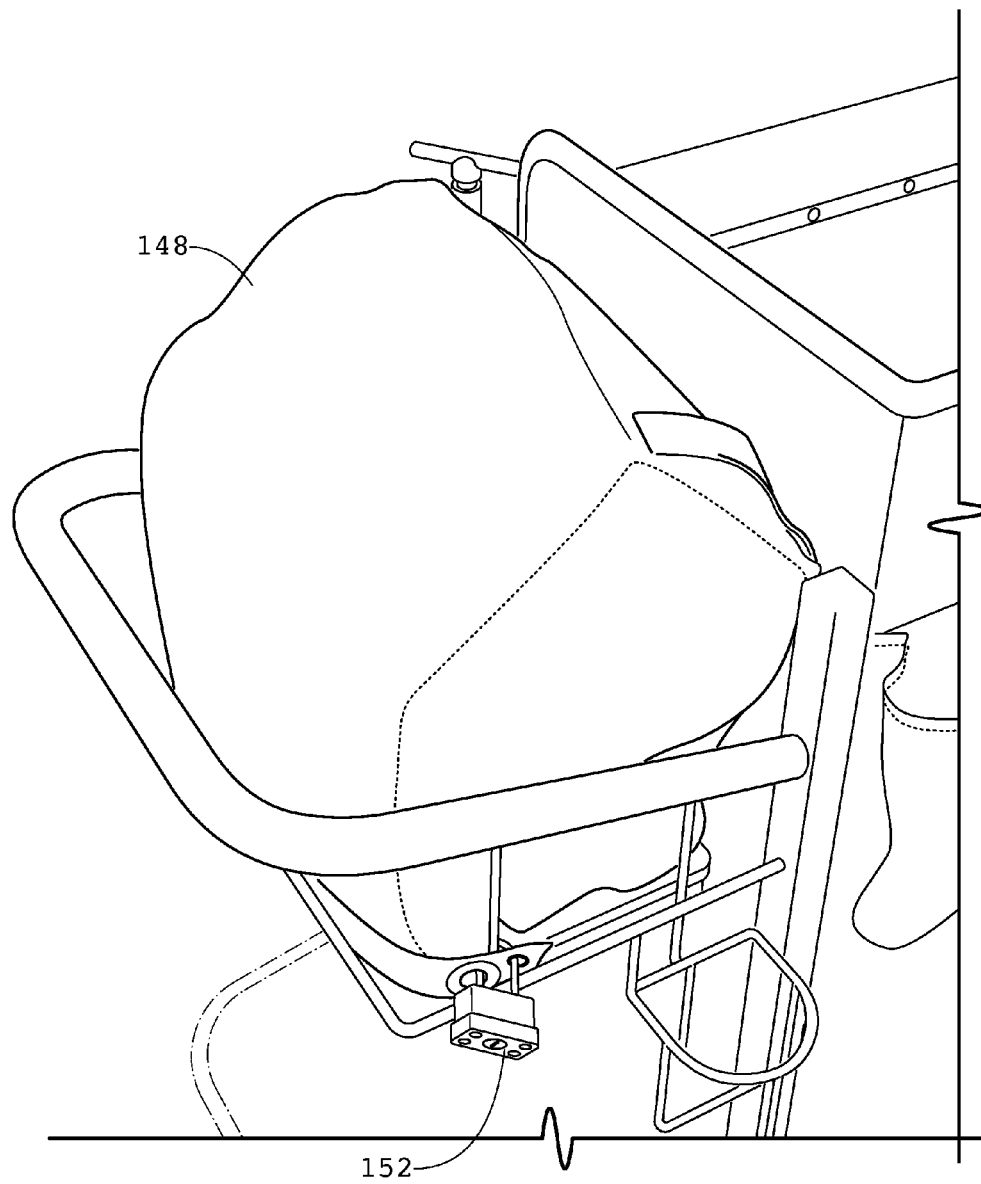


FIG. 12

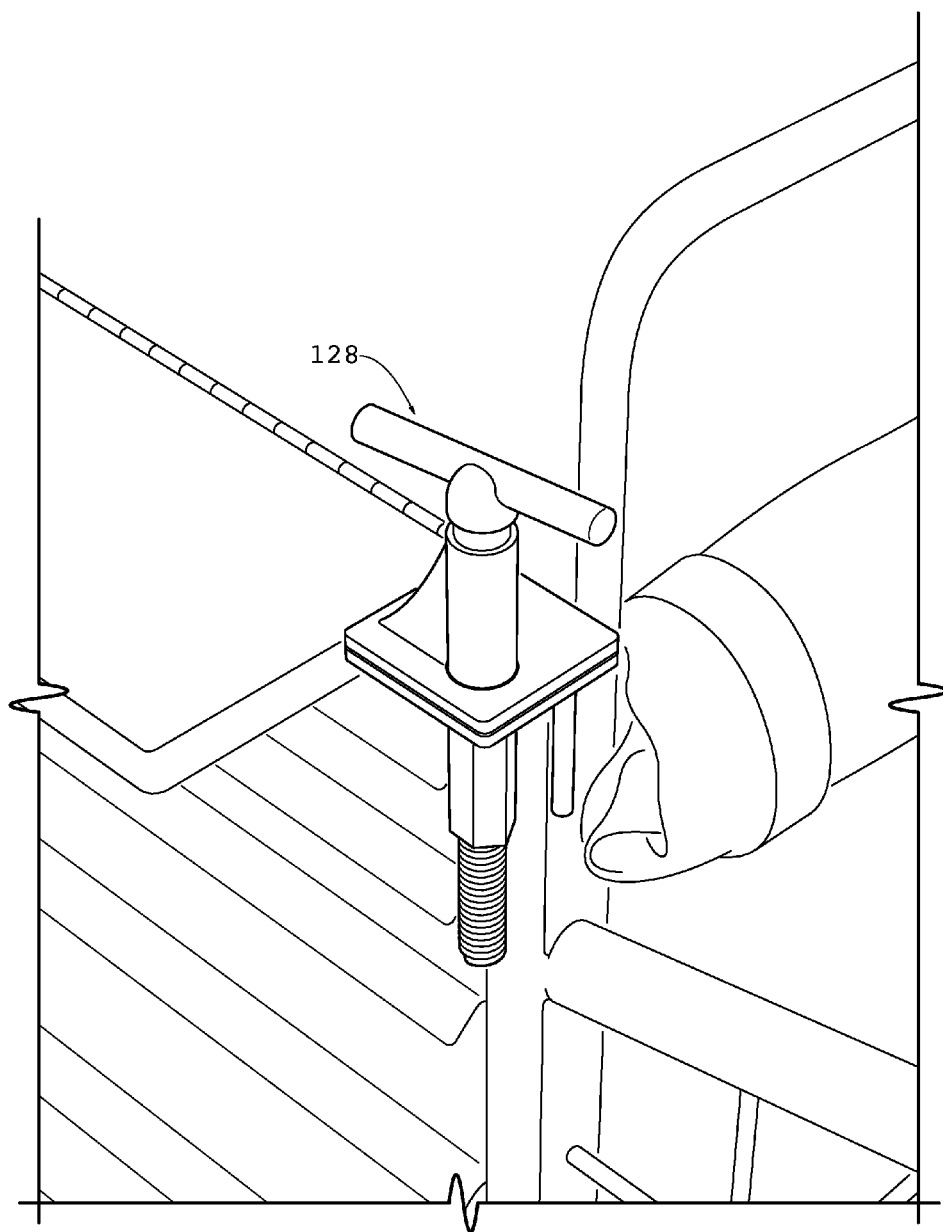


FIG. 13

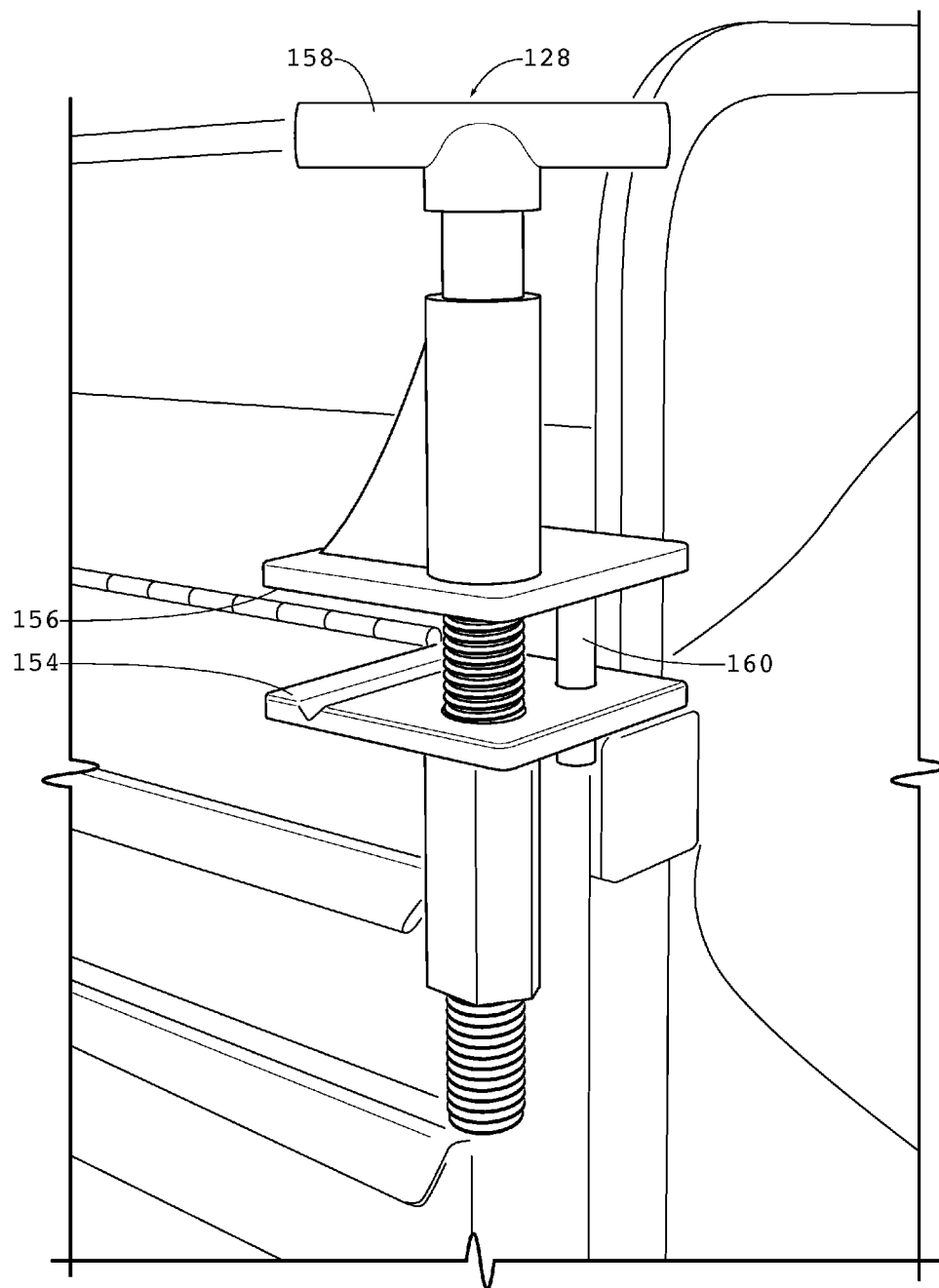


FIG. 14

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## UTILITY CART

## TECHNICAL FIELD

The present application generally relates to devices and methods for storing and transporting collections of items. More specifically, the present application relates to a utility cart having certain advantageous features.

## BACKGROUND

Portable utility carts and cabinets are well known for storing and transporting a variety of items, such as audio/video equipment, tool sets and supplies for hotel service employees. Prior art utility carts are typically designed to carry either disparate items or an inflexible predefined set of specific items. A need therefore exists for a utility cart which can be reconfigured as desired to carry a defined set of items. Additionally, a need exists for a cart that securely carries a tool bag while providing visibility of items secured to the tool bag.

## SUMMARY

According to the present application, an example utility cart is disclosed. The example cart comprises: a frame comprising a compartment base, a compartment back panel, a first compartment side panel, a compartment top retainer and a compartment side retainer; a plurality of wheels supporting the frame; and a door assembly hingedly attached to the frame. The door assembly comprises a compartment front panel, a compartment top panel, and a second compartment side panel. The compartment top panel is hingedly attached to the compartment front panel, and the compartment top panel is movable between a first position wherein the compartment top panel engages the compartment top retainer, and a second position wherein the compartment top panel does not engage the compartment top retainer. The door assembly is moveable between a closed position in which the second compartment side panel engages the compartment side retainer and an open position in which the second compartment side panel does not engage the compartment side retainer.

## BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying figures, which are incorporated in and constitute a part of the specification, illustrate various example apparatuses, systems, methods, and so on, and are used merely to illustrate various example embodiments. It should be noted that various components depicted in the figures may not be drawn to scale, and that the various assemblies and designs depicted in the figures are presented for purposes of illustration only, and should not be considered in any way as limiting.

FIG. 1 illustrates a right side view of an example utility cart.

FIG. 2 illustrates a rear view of the example utility cart of FIG. 1.

FIG. 3 illustrates a left side view of the example utility cart of FIG. 1.

FIG. 4 illustrates the storage compartment of the example utility cart of FIG. 1.

FIG. 5 illustrates a left side view of the example utility cart of FIG. 1.

FIG. 6 illustrates a top perspective view of the example utility cart of FIG. 1.

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FIG. 7 illustrates a top perspective view of the example utility cart of FIG. 1.

FIG. 8 illustrates a front left perspective view of the example utility cart of FIG. 1.

FIG. 9 illustrates a front left perspective view of the example utility cart of FIG. 1.

FIG. 10 illustrates a top left rear perspective view of the example utility cart of FIG. 1.

FIG. 11 illustrates a top left rear perspective view of the example utility cart of FIG. 1.

FIG. 12 illustrates a top right rear perspective view of the example utility cart of FIG. 1.

FIG. 13 illustrates a magnified perspective view of vice in closed position.

FIG. 14 illustrates a magnified perspective view of vice in open position.

## DRAWING REFERENCE NUMERALS

The following reference characters identify the associated elements depicted in the drawings describing the present invention:

- 100** Cart
- 102** Frame
- 104** Rear Wheel
- 106** Front Wheel
- 108** Handle
- 110** Wastebasket Retainer
- 112** Basket
- 114** Drink Holder
- 116** Tool Bag
- 117** Compartment Top Retainer
- 118** Door Assembly
- 119** Compartment Side Retainer
- 122** Work Surface
- 124** Fixed Side Wall
- 126** Hinged Side Wall
- 128** Vice
- 130** Drawer
- 132** Bi-level Bottom
- 133** Compartment Base
- 134** Compartment Front Panel
- 135** First Compartment Side Panel
- 136** Second Compartment Side Panel
- 137** Compartment Back Panel
- 138** Compartment Top Panel
- 140** Ladder Hanger
- 142** Removable Storage Panel
- 144** Removable Storage Panel
- 146** Holder
- 147** Elongated Space
- 148** Cover
- 150** Tool Holder
- 152** Lock

## DETAILED DESCRIPTION

FIGS. 1-14 illustrate various aspects of an example utility cart **100**. As shown in FIGS. 1 and 2, cart **100** comprises a frame **102**, at least one rear wheel **104**, at least one front wheel **106**, a handle **108**, a wastebasket retainer **110**, removable wastebasket **111**, a tool bag retainer or basket **112**, a drink holder **114**, and a removable tool bag **116**.

A left side view of cart **100** is shown in FIG. 3. As shown, cart **100** further comprises a door assembly **118** which cooperates with compartment side retainer **119** and comprises compartment top panel **138**. Cart **100** also comprises

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a work surface **122** surrounded by fixed side walls **124** and hinged side wall **126**. As shown, hinged side wall **126** is disposed in an open or down position. Cart **100** comprises a vice **128**, plurality of drawers **130**, and a bi-level bottom **132** which accommodates differently sized front wheels **106** and rear wheels **104**.

The bi-level bottom **132** is more clearly shown in FIG. 4. FIG. 4 further illustrates compartment base **133** which defines the bottom of a compartment that is formed when the door assembly is disposed in a closed position.

Another left side view of cart **100** is shown in FIG. 5 wherein the hinged side wall **126** is disposed in a closed or up position. When the hinged side wall **126** is in the closed position, as shown more clearly in FIG. 6, items on work surface **122** are retained within the work surface. When the hinged side wall **126** is in the open position, as shown more clearly in FIG. 7, items on work surface **122** are not so retained, and the hinged side wall **126** may function as an extension of the work surface **122**.

A front left perspective view of cart **100** is shown in FIG. 8. As shown, cart **100** is configured such that door assembly **118** is disposed in a closed position. When door assembly **118** is in the closed position, door assembly **118** cooperates with frame **102** to define the compartment. Door assembly **118** comprises compartment front panel **134**, a second compartment side panel **136**, and a compartment top panel **138**. Ladder hanger **140** is shown attached to door assembly **118**.

Another front left perspective view of cart **100** is shown in FIG. 9. In FIG. 9, cart **100** is configured such that door assembly **118** is disposed in an open position. As illustrated with door assembly **118** in the open position, compartment top retainer **117** and the elements of frame **102** that define the compartment formed by door assembly **118** and frame **102** are visible. The elements of frame **102** that define the compartment include: the compartment base **133**, a first compartment side panel **135**, and a compartment back panel **137**. Removable storage panels **142** and **144** are disposed on the interior of door **118** and on cart **100**, respectively. Storage panels **142** and **144** may be secured to cart **100** using storage panel fasteners (not shown). In the illustrated example embodiment, the storage panel fasteners are hook and loop style fasteners, commonly referred to as Velcro. Of course, one having ordinary skill in the art will recognize numerous alternate embodiments for storage panel fasteners.

The storage panels **142** and **144** may be detached from the cart **100** and replaced with a substitute or alternate tool panel. This allows the cart **100** to be customized for specific applications, such as may be required by electrical contractors, hotel maintenance employees, computer repair personnel and plumbers, for example. Each storage panel may comprise holders, such as holder **146**, for retaining desired items within cart **100**.

Referring now to FIG. 10, a rear perspective view of cart **100** is presented. As shown in FIG. 10, cart **100** is configured with hinged side wall **126** disposed in an open position such that it provides an extension for work surface **122**. Further tool bag **116** has been removed from cart **100** providing a view of cover **148** and a more complete view of basket **112**. Vice **128** is also illustrated in its closed configuration.

FIG. 11 provides another rear perspective view of cart **100** wherein tool bag **116** is disposed within basket **112**. As shown, tool bag **116** comprises a frame, a flexible covering comprising at least a portion of an outer surface of the tool bag, and a tool holder **150**. The tool holder **150** is hingedly attached to the frame, and the tool holder **150** is movable between a first position in which tool holder **150** may be

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folded downward, thereby reducing the lateral profile of the tool holder **150** (not shown), and a second position in which the lateral profile of the tool holder **150** is enlarged, as shown in FIG. 11. In the second position, the tool holder **150** is configured to receive a handle of a tool.

FIG. 12 provides an upper right rear perspective view of cart **100** wherein the tool bag **116** is covered by cover **148**. As illustrated, cover **148** may be locked using a standard lock **152**.

FIG. 13 provides a magnified perspective view of vice **128** in a closed position. FIG. 14 provides a magnified perspective view of vice **128** in an open position. As illustrated, vice **128** is a compact and lightweight tool. Vice **128** comprises a base **154** comprising a horizontal work surface, and a jaw **156** comprising a gripping surface. Jaw **156** cooperates with mechanism **158** to enable movement of the jaw **156** between an open and closed position thereby retaining a work piece between the work surface and the gripping surface.

Jaw **156** further comprises an indexing element **160** which mates with an indexing void defined by base **154** so as to properly orient the jaw **156** with respect to the base **154**. When jaw **156** is opened beyond the depth of the indexing element **160**, the orientation of jaw **156** is no longer fixed, allowing jaw **156** to be swiveled or rotated away from the work surface to enable the work surface of base **154** to be used without obstruction.

Notwithstanding that the numerical ranges and parameters setting forth the broad scope of the invention are approximations, the numerical values set forth in the specific examples are reported as precisely as possible. Any numerical value, however, inherently contains certain errors necessarily resulting from the standard deviation found in their respective testing measurements.

Furthermore, while the devices, systems, methods, and so on have been illustrated by describing examples, and while the examples have been described in considerable detail, it is not the intention of the applicant to restrict, or in any way, limit the scope of the appended claims to such detail. It is, of course, not possible to describe every conceivable combination of components or methodologies for purposes of describing the devices, systems, methods, and so on provided herein. Additional advantages and modifications will readily appear to those skilled in the art. Therefore, the invention, in its broader aspects, is not limited to the specific details and illustrative examples shown and described. Accordingly, departures may be made from such details without departing from the spirit or scope of the applicant's general inventive concept. Thus, this application is intended to embrace alterations, modifications, and variations that fall within the scope of the appended claims. The preceding description is not meant to limit the scope of the invention. Rather, the scope of the invention is to be determined by the appended claims and their equivalents.

Finally, to the extent that the term "includes" or "including" is employed in the detailed description or the claims, it is intended to be inclusive in a manner similar to the term "comprising," as that term is interpreted when employed as a transitional word in a claim. Furthermore, to the extent that the term "or" is employed in the claims (e.g., A or B) it is intended to mean "A or B or both." When the applicants intend to indicate "only A or B, but not both," then the term "only A or B but not both" will be employed. Similarly, when the applicants intend to indicate "one and only one" of A, B, or C, the applicants will employ the phrase "one and only one." Thus, use of the term "or" herein is the inclusive,



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and not the exclusive use. See Bryan A. Garner, A Dictionary of Modern Legal Usage 624 (2d. Ed. 1995).

What is claimed is:

1. A cart comprising:

a frame, the frame comprising a compartment base, a compartment back panel, a first compartment side panel, a compartment top retainer and a compartment side retainer;

a plurality of wheels supporting the frame; and

a door assembly hingedly attached to the frame, the door assembly comprising:

a compartment front panel,

a compartment top panel, and

a second compartment side panel,

wherein the compartment top panel is hingedly attached to the compartment front panel, the compartment top panel being movable between a first position wherein the compartment top panel engages the compartment top retainer, and a second position wherein the compartment top panel does not engage the compartment top retainer; and

wherein the door assembly is moveable between a closed position in which the second compartment side panel engages the compartment side retainer and an open position in which the second compartment side panel does not engage the compartment side retainer.

2. The cart of claim 1 wherein the second compartment side panel is hingedly attached to the compartment front panel.

3. The cart of claim 1 further comprising at least one holder disposed within a compartment formed by the frame and the door assembly when the door assembly is in the closed position.

4. The cart of claim 1 wherein the frame defines an elongated vertical space for storing an item.

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5. The cart of claim 1 wherein the frame comprises a bi-level base for accommodating wheels of different sizes.

6. The cart of claim 1 wherein the second compartment side panel is fixedly attached to the compartment front panel.

7. A cart comprising:

a frame, the frame comprising a compartment base, a compartment back panel, a first compartment side panel, a compartment top retainer and a compartment side retainer;

a plurality of wheels supporting the frame; and

a door assembly hingedly attached to the frame, the door assembly comprising:

a compartment front panel,

a compartment top panel hingedly attached to the compartment front panel, and

a second compartment side panel fixedly attached to the compartment front panel,

wherein the compartment top panel is movable between a first position wherein the compartment top panel engages the compartment top retainer, and a second position wherein the compartment top panel does not engage the compartment top retainer; and

wherein the door assembly is moveable between a closed position in which the second compartment side panel engages the compartment side retainer and an open position in which the second compartment side panel does not engage the compartment side retainer.

8. The cart of claim 7 further comprising at least one holder disposed within a compartment formed by the frame and the door assembly when the door assembly is in the closed position.

9. The cart of claim 7 wherein the frame defines an elongated vertical space for storing an item.

10. The cart of claim 7 wherein the frame comprises a bi-level base for accommodating wheels of different sizes.

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